



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,860	10/19/2001	Thomas E. Davis	2200-00006	5332

7590 01/02/2004

Micheal R. Dinnin
Dinnin & Dunn, P.C.
Top of Troy Building
755 West Big Beaver Road
Troy, MI 48084

EXAMINER

BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
----------	--------------

1711

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,860

Applicant(s)

DAVIS ET AL.

Examiner

Melanie D. Bissett

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33, 50, 53-56 and 59-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 50, 53-56 and 60-68 is/are allowed.
- 6) ☒ Claim(s) 1-14, 16-24, 27-33 and 59 is/are rejected.
- 7) ☒ Claim(s) 15, 25 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Art Unit: 1711

1. The rejections cited in the final rejection mailed 9/16/03 have been withdrawn. Upon the finding of new art, the indication of allowability for independent claim 9 has also been withdrawn. A non-final action on the merits follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 59 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 59 recites the limitation "said amine-terminated polyether resins" in line 2. There is insufficient antecedent basis for this limitation in the claim. It appears that this phrase was intended to be deleted from the claim. However, the amendment does not reflect such an omission.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 9-11, 14, 16-22, and 32-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Dehm et al.
7. Dehm discloses phenolic resin polyols to be reacted with polyurethane reactants (abstract). A description of polyurethane reactions teaches the use of isocyanate-terminated prepolymers reacted with diamine chain extenders and phenolic resin polyols (col. 8 lines 25-47). Prepolymers are formed by the reaction of a polyisocyanate and a polyether or polyester polyol in an NCO index of about 1, where aromatic and aliphatic isocyanates are noted. Example 5 shows the formation of a two-pack urethane coating system, where the isocyanate-reactive components are combined before the addition of the isocyanate component. The isocyanate-reactive components include the phenolic resin polyol and a hydroxyl-terminated polyether having a functionality of 3. The reaction occurs without the use of a catalyst and does not require external components or steps to initiate the curing of the coating. In the example, the phenolic resin polyol has a functionality of 6. The coatings of Dehm's invention would possess urea linkages by the introduction of diamine chain extenders.

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
9. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dehm et al. in view of Coyner et al.

10. Dehm applies as above, teaching the use of isocyanate-terminated prepolymers in the coating systems but failing to specify the properties of the polyols used in the prepolymer formation. Coyner discloses polyurethane prepolymers used to form elastomeric coatings, where the viscosity of the prepolymer is controlled by choosing the molecular weight, equivalent weight, and functionality of the polyol component (col. 5 lines 36-53). The reference teaches that molecular weights above 10,000 should be avoided, and that triols having equivalent weights above 3,300 should also be avoided. Preferably, a polyether triol having an equivalent weight of 1,000-3,000 is chosen (col. 6 lines 11-30). From Coyner's teaching, it is the examiner's position that it would have been prima facie obvious to choose a polyether triol having sufficient molecular weight and viscosity to optimize the viscosity of the prepolymer component in Dehm's invention.

11. Claims 1-7, 24, 27, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dehm et al. in view of Tabor et al.

12. Dehm applies as above, noting the use of diamine chain extenders but failing to mention the use of amine-terminated polyether chain extenders. Tabor teaches polyurethane coatings, where chain extender blends are contemplated (col. 7 lines 19-57). The main chain extender, aminoethyl ethanolamine, is an aliphatic diamine (col. 1 lines 53-64). Secondary chain extenders include those having molecular weights of 30-500, like amine-terminated polyethers. By Tabor's teaching of conventional chain extenders, it is the examiner's position that it would have been prima facie obvious to

Art Unit: 1711

use a blend of amine-terminated polyethers with other diamines to achieve sufficient chain extension in Dehm's invention.

13. Regarding the gel time, Dehm teaches a polyurethane reaction of isocyanate prepolymers with isocyanate-reactive components. The reaction needs no catalysis. Since the combination of Dehm and Tabor teach a number of isocyanate-reactive components claimed by the applicant and because the methods of Dehm teach reaction without catalysis, it is the examiner's position that the components would inherently begin reacting upon contact; i.e. immediately. Thus, it appears that the applicant's claimed "gel time" is met.

14. Claims 23 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dehm et al. in view of Oertel.

15. Dehm applies as above, noting the use of diamine chain extenders but failing to mention specific chain extenders. Oertel teaches that sterically hindered aromatic chain extenders are used to promote just the right reactivity, where aliphatic diamines are too reactive (p. 24). Diethyltoluene diamine is noted as a conventional aromatic diamine having a certain reactivity due to strategically placed substituents (p. 106). Because this diamine is conventionally used in the formation of polyurethane-ureas, it is the examiner's position that it would have been prima facie obvious to use diethyltoluene diamine as a chain extender in Dehm's invention to affect the reactivity of the urethane system.

16. Regarding the addition of an epoxy resin, Dehm discloses the reaction of phenolic resin with both polyurethane reactants and epoxy materials, where epoxy coatings have durability and high hardness at high temperatures (examples 15 and 17). However, the reference does not suggest the blending of the two components. Oertel teaches that such a blending of epoxy resins and NCO prepolymers is conventional, where the product incorporates the flexible nature of the polyurethanes into the durable epoxy resins (p. 571). It is the examiner's position that it would have been *prima facie* obvious to include epoxy resins in the amine-reactive component of Dehm's invention to produce a coating combining the properties of the polyurethanes and epoxy resins.

17. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dehm et al. in view of Tabor et al. as applied to claims 1-7, 24, 27, and 30-31 above, and further in view of Oertel.

18. Regarding the addition of an epoxy resin, Dehm discloses the reaction of phenolic resin with both polyurethane reactants and epoxy materials, where epoxy coatings have durability and high hardness at high temperatures (examples 15 and 17). However, the combined references do not suggest the blending of the two components. Oertel teaches that such a blending of epoxy resins and NCO prepolymers is conventional, where the product incorporates the flexible nature of the polyurethanes into the durable epoxy resins (p. 571). It is the examiner's position that it would have been *prima facie* obvious to include epoxy resins in the amine-reactive component to produce a coating combining the properties of the polyurethanes and epoxy resins.

Allowable Subject Matter

19. Claims 50, 53-56, and 60-68 are allowed.
20. Claims 15 and 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
21. Claim 59 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.
22. The following is a statement of reasons for the indication of allowable subject matter:
23. The closest prior art, Dehm et al., discloses curable polyurethane coating compositions comprising a polyisocyanate and a mixture of isocyanate-reactive compounds including a polyether polyol. The use of diamine chain extending agents and phenolic resins are both suggested. However, the reference requires the presence of polyols to react with the isocyanate and does not teach the inclusion of at least 70% amine groups based on the number of active hydrogen groups. Also, the reference does not teach the specific blending of primary and secondary amine-terminated polyols for reaction with the isocyanate or the use of high molecular weight aminated polyols. It is the examiner's position that the applicant's claimed amine group amount and amine-terminated polyol blend in the claimed methods and compositions would provide novel and unobvious steps over the prior art.

Response to Arguments

24. Applicant's arguments with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (571) 272-1068. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb


RABON SERGENT
PRIMARY EXAMINER